

AMGARD

What is amGardpro

amGardpro is the ultimate range of modular safety gate switch interlocks, for heavy duty applications. Its unique modular construction allows easy configuration and provides total electro-mechanical solutions for practically any safeguarding application up to SIL3 (EN/IEC 62061), Category 4 and Ple (EN/ISO 13849-1).

With its unrivalled design concept, **amGardpro** offers a range of fully integrated safety interlocks, including solenoid and non solenoid safety switches complete with a host of additional options including key control modules, emergency release, redundant sensors, lock out/tag out and push buttons, estops and indication lights for enhanced functionality. The robust construction of this range makes it ideal for use in a wide range of industrial applications when safety, strength and reliability are of paramount importance.

The amGardpro system replaces all adaptations normally fitted within a guarding system, such that additional hardware like door catches, actuators, closing mechanisms, internal mechanisms, key functions including authorised access and deadlocks may be no longer needed. All of these separate functions can be incorporated into **amGardpro** configurations, resulting in the most flexible safety interlock solution available for today's industrial environment.



Actuators

Actuators

*Handle Actuators
Tongue Actuators
All in One Head and Handle Actuator
Slidebars*



Head Modules

Head Modules

*Handle Actuator Head Module
Tongue Actuator Head Module
All in One Head and Handle Unit
Padlock Adaptor
Foot (to terminate mechanical lock)*



Adaptors

Adaptors

*Safety Key Adaptors
Access Key Adaptors
Extracted Key Adaptors
Internal Release Adaptors*



Electrical Switching / Locking

Electrical Switching / Locking

*Safety Switch Bodies
Solenoid Controlled Lock Bodies
Extended Body Solenoid Controlled Lock Bodies
Explosion Proof Switch Bodies
Foot (to terminate mechanical lock)*



*AS-interface versions available
European, Canadian and North American approvals*



Option PODs

Option PODs

*Key Switch Option Pod
Indicator Lamp Option Pod
Pushbutton Option Pod*

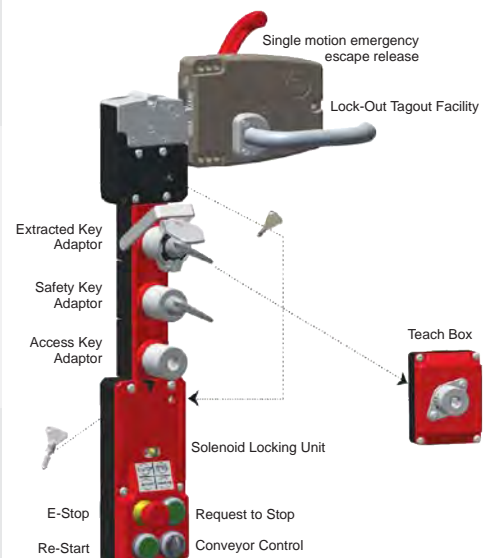


*AS-interface versions available
European, Canadian and North American approvals*

- Improved Standards Compliance**
- Complies with all new and forthcoming machine safety standards
 - Integrated redundancy sensor solution (with coding options).
 - Single motion emergency escape release regardless of solenoid or trapped key locking mechanisms.

- Enhanced Machine Control Functionality**
- Integrated pushbutton control in single unit.
 - Up to 4 illuminated pushbuttons/lamps/selector switches, including 1 E-Stop.
 - Up to 10 Safety/Access keys in one configuration.

- Enhanced Strength**
- Stainless steel heads with mounting point, increasing retention force to market leading 10KN.
 - Standardisation and enhancement of all anti-vibration features.
 - Improved weather resistance.



AMGARD

Application Examples

amGardpro Application Example I

This example shows the safeguarding of robot areas in which amGardpro products offer a combined mechanical and electrical solution.

1 NO2C6SKL12LL411L0WB00N

By pressing the access request button, the machine or installation is shut down, by the machine control system.

The solenoid, controlled by the machine control system restricts the release of keys A until the guarded area or machine is safe to enter (indicated by the yellow status LEDs).

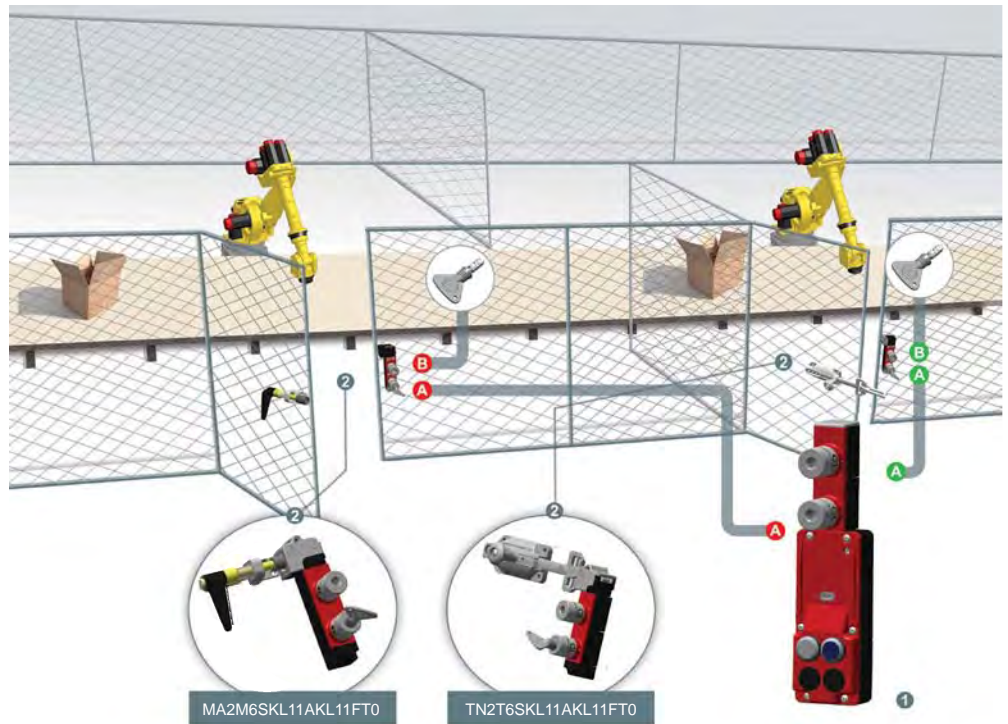
Energising the solenoid breaks the dual safety circuits to prevent unexpected re-start.

Both safety keys A can now be released indicated by the red status LED.

2 TN2T6SKL11AKL11FT0

Keys A can be used to unlock the door locks and release the safety keys B. These can be taken inside the guarded area to prevent personnel being trapped and/or an accidental machine restart.

By reversing this compulsory procedure the machine can safely be restarted.



MA2M6SKL11AKL11FT0

TN2T6SKL11AKL11FT0

amGardpro Application Example II

This example shows the safeguarding of a potentially dangerous area with a teach mode function inside.

1 TN2T6SL411BK21

Removal of the key from one of the pods at the doors selects machine stop at the end of a run down cycle. The solenoid is then energised by the machine control system and access can be gained.

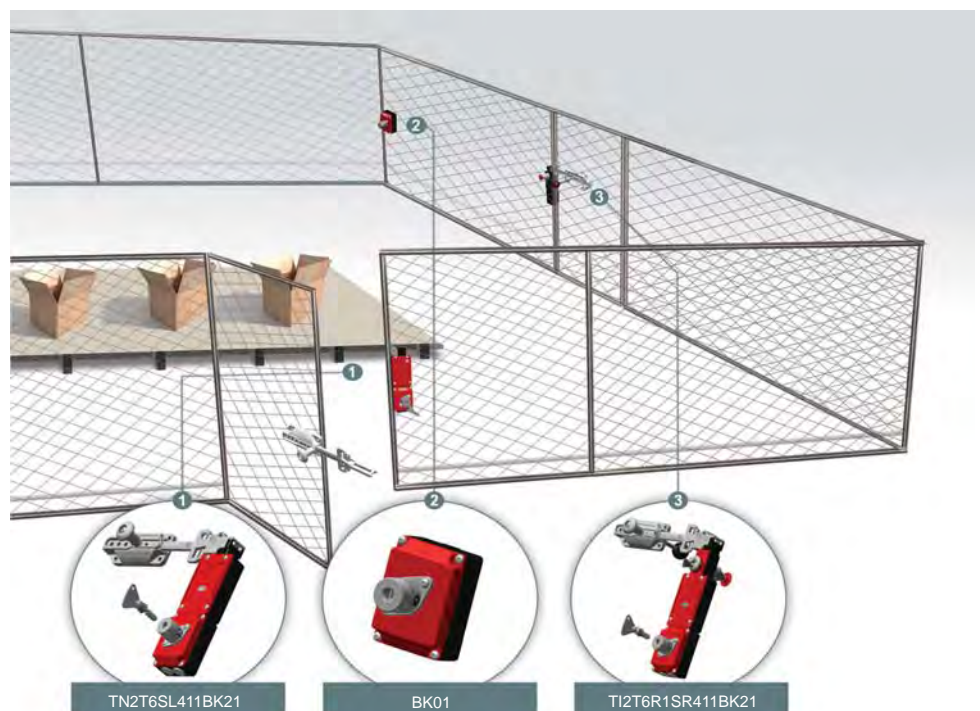
The operator can take the safety key into the potentially hazardous area preventing restart.

2 BK01

By inserting one of the keys in the stand alone pod inside the guarded area safe programming can be initiated.

3 TI2T6R1SR411BK21

The LOK internal release option can be used to unlock the door from inside a guarded area should personnel become trapped. By pushing the button on the rear of the unit, the tongue is released from the actuator head and the door can be opened from the inside. This also breaks both safety circuits, which then have to be manually reset before the machine can re-start.



TN2T6SL411BK21

BK01

TI2T6R1SR411BK21

AMGARD MODULAR COMPONENTS

Actuators



proAM Handle

- Used in conjunction with proAM Head.
- Heavy duty handle unit.
- Operating handle can be rotated in 45° increments.
- Allows for guard misalignment.
- Turning motion holds door closed preventing nuisance trips.
- Extremely high retention force when used in locking applications.
- Ideal for hinged guard doors (especially double doors)

Add-Ons

AM Lock-Out Clip

Once inserted into the head and padlocked in position, it blocks the handle entry preventing the door being closed and the machine from being restarted.



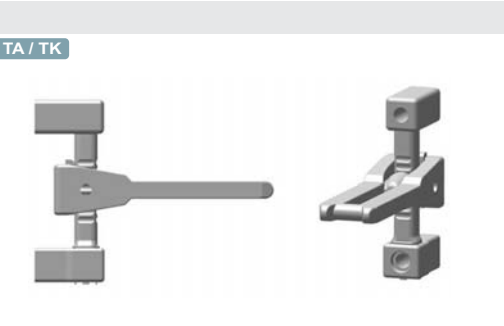
AML

AT Lock-Out Clip

Once inserted into the head and padlocked in position, it blocks the tongue entry preventing the door being closed and the machine from being restarted.

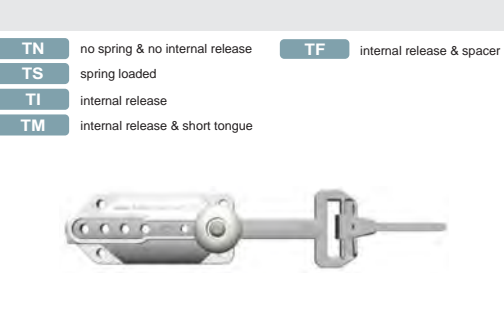


ATL



proAT Tongue

- Used in conjunction with proAT Head.
- Heavy duty tongue unit.
- Ideal for fast, frequent access.
- Operating radius - 900mm.
- 3 position fixing at 90° increments.
- Misalignment tolerance of +/- 12mm.
- 12mm over travel allowance.
- Short TK version available.



proSlidebar

- Used in conjunction with the proAT Head.
- Particularly useful for applications using small radius, hinged doors.
- Stainless steel casting.
- Built in lock-out facility to accommodate a maximum of 4 padlocks with up to 8mm diameter shackles.

Spring loaded version (TS) is advised when exposed to vibration



proHandle

- Used in conjunction with the proAT Head.
- Particularly useful for applications using small radius, hinged doors.
- Intuitive opening style.
- Zinc alloy casting.
- Built in lock-out facility to accommodate a maximum of 4 padlocks with up to 8mm diameter shackles.
- Misalignment +/- 12mm.
- Escape release option for use with non-locking system (proStop) or push IR only.
- On site hadling change possible (refer to installation instructions).

AMGARD MODULAR COMPONENTS

Actuators

EI



proRelease IR Handle

To be used in conjunction with proRelease head units I6 and I7

- Intuitive handle emergency release.
- Emergency release activation releases tongue and opens safety contacts.
- Heavy duty tongue unit. ideal for fast frequent access.
- 2 position mounting at 180° increments allowing on site handling change.
- Mis-alignment tolerance of +/- 10mm.
- Multiple mounting options (refer to installation instructions).
- Pin hex key reset function.

Actuators - Handling

Front Facing (1)



Left Hand (2)



Rear Facing (3)



Right Hand (4)



Head Modules

C6 proCap



proCap

- To terminate assemblies without head modules, for example, solenoid controlled key release.
- Removable to allow for modification.

M6 proAM Head

M7 proAM Head c/w drop down lockout

M8 proAM Head c/w lockout clip



proAM Head

- Used in conjunction with proAM Handle.
- Operating handle can be rotated in 45° increments.
- 4 position fixing at 90° increments allowing on site handling change.
- Allows for guard misalignment.
- Turning motion holds door closed preventing nuisance trips.
- Extremely high retention force when used in locking applications - 10 000N.
- Can be fitted with lock-out devices for additional safety.

AMGARD MODULAR COMPONENTS

Head Modules

- T6** proAT Head
- T7** proAT Head c/w drop down lockout
- T8** proAT Head c/w lockout clip



proAT Head

- Used in conjunction with proAT Tongue.
- Ideal for fast, frequent access.
- 4 position fixing at 90° increments allowing on site handling change.
- Misalignment tolerance of +/- 12mm.
- 12mm Over travel allowance.
- Retention force 10 000N when top fixing is used.
- Can be fitted with lock-out devices for additional safety.
- Mounted upside down it is self cleaning, ideal for dusty environments.

- I6** proIR Head (to be used in conjunction with EI)
- I7** proIR Head (to be used in conjunction with EI)



proRelease IR Handle

The proRelease head is a means of achieving a single action emergency release function from inside a guarded area. It consists of a releasing head and handle pair.

- To be used in conjunction with proRelease Handle unit EI which when operated will override any key modules in configuration and stop the process.
- Intuitive handle emergency release.
- Emergency release activation releases tongue and opens safety contacts.
- Heavy duty tongue unit.
- Ideal for fast, frequent access.

Adaptors

- R1-4** proPushIR - Key reset
- R6-9** proPushIP - Pull reset
- RW-Z** proPushIR - Front reset

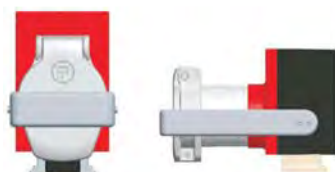


proIR - Escape Release Adaptor

proIR Escape release adaptor module is used in conjunction with a releasing amGardpro unit to provide an escape function from an interlocked hazardous area.

- Only 1 proIR adaptor can be fitted in a configuration.
- proIR adaptor must be used in conjunction with "releasing" type units in the amGardpro range.
- Available for various panel thicknesses (40mm, 60mm & 80mm as standard).

- EK** proE - Extracted key adaptor



proE - Extracted Key Adaptor

The proE - Extracted key adaptor ensures that the door cannot be opened until the key has been removed from the lock, and the machine/process cannot be restarted without returning the key(s). It can furthermore prevent personnel being accidentally locked inside a guarded area.

- Provides enhanced safety key function.
- Provides a unique link to mGard range.
- Only 1 extracted key adaptor can be fitted in a configuration.

- SK** proLock - Safety key adaptor



proLock - Safety Key Adaptor

The proLock - Adaptor for safety ensures that the door cannot be opened until the key has been turned, and the machine/process cannot be restarted without returning the key(s).

- Provides a safety key function.
- Provides a unique link to mGard range.
- Up to 10 key adaptors in one configuration.

AMGARD MODULAR COMPONENTS

Adaptors

AK proLock - Access key adaptor



proLock - Access Key Adaptor

The proLock Adaptor for Access is ideally suited for authorised access only, or linked access to other machinery. It ensures a specific sequence or operation and can be stacked or combined with other adaptors.

- Provides access key function.
- Provides a unique link to mGard range.
- Up to 10 key adaptors in one configuration.

LO



Single Lock-Out Padlock Adaptor

Provides padlocking only in one position.

- Provides a link with other lock-out tag-out safety procedures.
- Accommodates up to 5 padlocks with 7.5mm diameter shackles.
- Facilitates enhanced supervisor security.

LT



Dual Lock-Out Padlock Adaptor

This unit is equipped with two padlock positions for use as a voluntary lock-out facility.

- Provides a link with other lock-out tag-out safety procedures.
- Accommodates up to 5 padlocks with 8mm diameter shackles.
- Enables quick and easy access.

FOOT



proFoot




To terminate all non-switch configurations.




- Secures unit firmly to mounting surface.
- Removable to allow for modification.
- For use in trapped key solutions.
- Seals from dust ingress.

AMGARD MODULAR COMPONENTS

Electrical Switching / Locking

Base units are the electromechanical elements of the heavy duty modular amGardpro range that interface with safety relays and PLC's providing controlled access to machinery or a guarded area. Tested to over 1 million operations, these units contain dual channel safety circuitry making them suitable for use in applications up to SIL3 (EN/IEC 62061) Category 4 and PLe (ENISO 13849-1).


| ST proStop | | proStop - Non Solenoid Safety Switch Body | Product Types | | | | | | | | |
|---|---|--|--|---------|--------|-----------|-------|---------|-------|---------|-------|
|   available |  | <p>The proStop - non solenoid safety switch is ideal for quick access to machines with no or short run-down cycles.</p> <ul style="list-style-type: none"> LED indicators for status identification. To be used with safety relay and/or safety PLC control systems. European, Canadian and North American approvals. | <table border="1"> <thead> <tr> <th>Control</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>24V AC/DC</td> <td>ST401</td> </tr> <tr> <td>110V AC</td> <td>ST101</td> </tr> <tr> <td>230V AC</td> <td>ST201</td> </tr> </tbody> </table> | Control | Ref No | 24V AC/DC | ST401 | 110V AC | ST101 | 230V AC | ST201 |
| Control | Ref No | | | | | | | | | | |
| 24V AC/DC | ST401 | | | | | | | | | | |
| 110V AC | ST101 | | | | | | | | | | |
| 230V AC | ST201 | | | | | | | | | | |

| SL proLok | | proLok and proLok+ Solenoid Controlled Body | Product Types | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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|   available |  | | <p>The proLok solenoid controlled body is used to manage activities by means of a solenoid control element. There are several versions of this unit.</p> <p>The proLok+ extended solenoid controlled body is used to manage activities by means of a solenoid control element. There are three basic types, Standard, Power to Lock and ASi. It may be used to include the use of pushbuttons, selector switches, lamps, E-Stops and/or Magnetic/RFID sensors within one enclosure.</p> <p>proLok & proLok+ Standard</p> <ul style="list-style-type: none"> LED indicators for status identification. Ideal for machines with run-down cycles. Split voltage available on request. To be used with safety relay and/or safety PLC control systems. <p>proLok & proLok+ Power to Lock</p> <ul style="list-style-type: none"> LED indicators for status identification. Split voltage available on request. To be used with safety relay and/or safety PLC control systems. <p>proLok & proLok+ AS interface</p> <ul style="list-style-type: none"> LED indicators for status identification. Ideal for machines with run-down cycles. To be used with safety relay and/or safety PLC control systems. <p>proLok & proLok+ Un-Monitored Solenoid</p> <ul style="list-style-type: none"> LED indicators for status identification. To be used with safety relay and/or safety PLC control systems. | <table border="1"> <thead> <tr> <th>Control/Solenoid - Standard</th> <th>Ref No</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>24V AC/DC / 24V AC/DC</td> <td>SL411</td> <td>LL411</td> </tr> <tr> <td>110V AC / 110V AC</td> <td>SL111</td> <td>LL111</td> </tr> <tr> <td>230V AC / 230V AC</td> <td>SL211</td> <td>LL211</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Control/Solenoid - Releasing</th> <th>Ref No</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>24V AC/DC / 24V AC/DC</td> <td>SR411</td> <td>LR411</td> </tr> <tr> <td>110V AC / 110V AC</td> <td>SR111</td> <td>LR111</td> </tr> <tr> <td>230V AC / 230V AC</td> <td>SR211</td> <td>LR211</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Control/Solenoid - Pwr to Lock</th> <th>Ref No</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>24V AC/DC / 24V AC/DC</td> <td>SL461</td> <td>LL461</td> </tr> <tr> <td>110V AC / 110V AC</td> <td>SL161</td> <td>LL161</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Pwr to Lock - Releasing</th> <th>Ref No</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>24V AC/DC / 24V AC/DC</td> <td>SR461</td> <td>LR461</td> </tr> <tr> <td>110V AC / 110V AC</td> <td>SR161</td> <td>LR161</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Asi</th> <th>Ref No</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>24V AC/DC / 24V AC/DC</td> <td>SL811</td> <td>LL811</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Asi - Releasing</th> <th>Ref No</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>24V AC/DC / 24V AC/DC</td> <td>SR811</td> <td>LR811</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Un-Monitored Solenoid</th> <th>Ref No</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>24V AC/DC / 24V AC/DC</td> <td>SL416</td> <td>LL416</td> </tr> <tr> <td>110V AC / 110V AC</td> <td>SL116</td> <td>LL116</td> </tr> <tr> <td>230V AC / 230V AC</td> <td>SL216</td> <td>LL216</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Un-Monitored Solenoid Releasing</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>24V AC/DC / 24V AC/DC</td> <td>LR416</td> </tr> <tr> <td>110V AC / 110V AC</td> <td>LR116</td> </tr> <tr> <td>230V AC / 230V AC</td> <td>LR216</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Individual Safety Circuits</th> <th>Ref No</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>24V AC/DC / 24V AC/DC</td> <td>SR468</td> <td>LR468</td> </tr> <tr> <td>110V AC / 110V AC</td> <td>SR168</td> <td>LR168</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Power to Lock</th> <th>Ref No</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>24V AC/DC / 24V AC/DC</td> <td>SL468</td> <td>LL468</td> </tr> <tr> <td>110V AC / 110V AC</td> <td>SL168</td> <td>LL168</td> </tr> </tbody> </table> | Control/Solenoid - Standard | Ref No | Ref No | 24V AC/DC / 24V AC/DC | SL411 | LL411 | 110V AC / 110V AC | SL111 | LL111 | 230V AC / 230V AC | SL211 | LL211 | Control/Solenoid - Releasing | Ref No | Ref No | 24V AC/DC / 24V AC/DC | SR411 | LR411 | 110V AC / 110V AC | SR111 | LR111 | 230V AC / 230V AC | SR211 | LR211 | Control/Solenoid - Pwr to Lock | Ref No | Ref No | 24V AC/DC / 24V AC/DC | SL461 | LL461 | 110V AC / 110V AC | SL161 | LL161 | Pwr to Lock - Releasing | Ref No | Ref No | 24V AC/DC / 24V AC/DC | SR461 | LR461 | 110V AC / 110V AC | SR161 | LR161 | Asi | Ref No | Ref No | 24V AC/DC / 24V AC/DC | SL811 | LL811 | Asi - Releasing | Ref No | Ref No | 24V AC/DC / 24V AC/DC | SR811 | LR811 | Un-Monitored Solenoid | Ref No | Ref No | 24V AC/DC / 24V AC/DC | SL416 | LL416 | 110V AC / 110V AC | SL116 | LL116 | 230V AC / 230V AC | SL216 | LL216 | Un-Monitored Solenoid Releasing | Ref No | 24V AC/DC / 24V AC/DC | LR416 | 110V AC / 110V AC | LR116 | 230V AC / 230V AC | LR216 | Individual Safety Circuits | Ref No | Ref No | 24V AC/DC / 24V AC/DC | SR468 | LR468 | 110V AC / 110V AC | SR168 | LR168 | Power to Lock | Ref No | Ref No | 24V AC/DC / 24V AC/DC | SL468 | LL468 | 110V AC / 110V AC | SL168 |
| Control/Solenoid - Standard | Ref No | Ref No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24V AC/DC / 24V AC/DC | SL411 | LL411 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110V AC / 110V AC | SL111 | LL111 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 230V AC / 230V AC | SL211 | LL211 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Control/Solenoid - Releasing | Ref No | Ref No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24V AC/DC / 24V AC/DC | SR411 | LR411 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110V AC / 110V AC | SR111 | LR111 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 230V AC / 230V AC | SR211 | LR211 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Control/Solenoid - Pwr to Lock | Ref No | Ref No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24V AC/DC / 24V AC/DC | SL461 | LL461 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110V AC / 110V AC | SL161 | LL161 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pwr to Lock - Releasing | Ref No | Ref No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24V AC/DC / 24V AC/DC | SR461 | LR461 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110V AC / 110V AC | SR161 | LR161 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asi | Ref No | Ref No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24V AC/DC / 24V AC/DC | SL811 | LL811 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asi - Releasing | Ref No | Ref No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24V AC/DC / 24V AC/DC | SR811 | LR811 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Un-Monitored Solenoid | Ref No | Ref No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24V AC/DC / 24V AC/DC | SL416 | LL416 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110V AC / 110V AC | SL116 | LL116 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 230V AC / 230V AC | SL216 | LL216 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Un-Monitored Solenoid Releasing | Ref No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24V AC/DC / 24V AC/DC | LR416 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110V AC / 110V AC | LR116 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 230V AC / 230V AC | LR216 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Individual Safety Circuits | Ref No | Ref No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24V AC/DC / 24V AC/DC | SR468 | LR468 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110V AC / 110V AC | SR168 | LR168 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Power to Lock | Ref No | Ref No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24V AC/DC / 24V AC/DC | SL468 | LL468 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110V AC / 110V AC | SL168 | LL168 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| SE proLokIR | | proLokIR and proLokIR+ Solenoid Controlled Body with Escape Release | Product Types | | | | | | | | | | | | | | | | | | |
|---|---|---|--|-----------------------------|--------|--------|-----------------------|-------|-------|-------------------|-------|-------|-------------------|-------|-------|-----|--------|--------|-----------------------|-------|-------|
|   available |  | <p>These units are equipped with escape release</p> <p>proLokIR & proLokIR+ Standard</p> <ul style="list-style-type: none"> LED indicators for status identification. Ideal for machines with run-down cycles. To be used with safety relay and/or safety PLC control systems. On activation of escape release, the safety contacts are broken. <p>proLokIR & proLokIR+ AS interface</p> <ul style="list-style-type: none"> LED indicators for status identification. Ideal for machines with run-down cycles. To be used with safety relay and/or safety PLC control systems. On activation of escape release, the safety contacts are broken. For use in AS-i safe environments. | <table border="1"> <thead> <tr> <th>Control/Solenoid - Standard</th> <th>Ref No</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>24V AC/DC / 24V AC/DC</td> <td>SE411</td> <td>LE411</td> </tr> <tr> <td>110V AC / 110V AC</td> <td>SE111</td> <td>LE111</td> </tr> <tr> <td>230V AC / 230V AC</td> <td>SE211</td> <td>LE211</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Asi</th> <th>Ref No</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>24V AC/DC / 24V AC/DC</td> <td>SE811</td> <td>LE811</td> </tr> </tbody> </table> | Control/Solenoid - Standard | Ref No | Ref No | 24V AC/DC / 24V AC/DC | SE411 | LE411 | 110V AC / 110V AC | SE111 | LE111 | 230V AC / 230V AC | SE211 | LE211 | Asi | Ref No | Ref No | 24V AC/DC / 24V AC/DC | SE811 | LE811 |
| Control/Solenoid - Standard | Ref No | Ref No | | | | | | | | | | | | | | | | | | | |
| 24V AC/DC / 24V AC/DC | SE411 | LE411 | | | | | | | | | | | | | | | | | | | |
| 110V AC / 110V AC | SE111 | LE111 | | | | | | | | | | | | | | | | | | | |
| 230V AC / 230V AC | SE211 | LE211 | | | | | | | | | | | | | | | | | | | |
| Asi | Ref No | Ref No | | | | | | | | | | | | | | | | | | | |
| 24V AC/DC / 24V AC/DC | SE811 | LE811 | | | | | | | | | | | | | | | | | | | |

AMGARD MODULAR COMPONENTS




Electrical Switching / Locking

| <p>LE proLokIR+</p>  | <p>proLokIR+ Solenoid Controlled Body with Escape Release</p> <p>These units are equipped with escape release</p> <p>proLok & proLokIR+ Individual</p> <ul style="list-style-type: none"> LED indicators for status identification. Ideal for machines with run-down cycles. To be used with safety relay and/or safety PLC control systems. On activation of escape release, the safety contacts are broken. Solenoid monitored by 1 x NC volt free contact and 1 x NO contact (input shared with head). Head monitored by 1 x NC volt free contact. | <p>Product Types</p> <table border="1"> <thead> <tr> <th>Individual</th> <th>Ref No</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>24V AC/DC / 24V AC/DC</td> <td>SE418</td> <td>LE418</td> </tr> <tr> <td>110V AC / 110V AC</td> <td>SE118</td> <td>LE118</td> </tr> <tr> <th>Individual Power to Lock</th> <th>Ref No</th> <th>Ref No</th> </tr> <tr> <td>24V AC/DC / 24V AC/DC</td> <td>SE468</td> <td>LE468</td> </tr> <tr> <td>110V AC / 110V AC</td> <td>SE168</td> <td>LE168</td> </tr> </tbody> </table> | Individual | Ref No | Ref No | 24V AC/DC / 24V AC/DC | SE418 | LE418 | 110V AC / 110V AC | SE118 | LE118 | Individual Power to Lock | Ref No | Ref No | 24V AC/DC / 24V AC/DC | SE468 | LE468 | 110V AC / 110V AC | SE168 | LE168 |
|--|---|--|------------|--------|--------|-----------------------|-------|-------|-------------------|-------|-------|--------------------------|--------|--------|-----------------------|-------|-------|-------------------|-------|-------|
| Individual | Ref No | Ref No | | | | | | | | | | | | | | | | | | |
| 24V AC/DC / 24V AC/DC | SE418 | LE418 | | | | | | | | | | | | | | | | | | |
| 110V AC / 110V AC | SE118 | LE118 | | | | | | | | | | | | | | | | | | |
| Individual Power to Lock | Ref No | Ref No | | | | | | | | | | | | | | | | | | |
| 24V AC/DC / 24V AC/DC | SE468 | LE468 | | | | | | | | | | | | | | | | | | |
| 110V AC / 110V AC | SE168 | LE168 | | | | | | | | | | | | | | | | | | |

| <p>STOPEX ATEX certified</p> <p>STOPUX UL/CSA certified</p>  <p>Ex II 2G c</p> | <p>Explosion Protected Safety Switch Body</p> <p>STOPEX: ATEX certified product. Heavy duty explosion protected safety gate switch. Suitable for zone 1 & 2 environments.</p> <p>STOPUX: UL / CSA certified product. Heavy duty explosion protected safety gate switch. Suitable for zone 1 & 2 environments.</p> | <p>Product Types</p> <table border="1"> <thead> <tr> <th></th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>STOPEX</td> <td>Ex401</td> </tr> <tr> <td>STOPUX</td> <td>UX401</td> </tr> </tbody> </table> | | Ref No | STOPEX | Ex401 | STOPUX | UX401 |
|---|---|---|--|--------|--------|-------|--------|-------|
| | Ref No | | | | | | | |
| STOPEX | Ex401 | | | | | | | |
| STOPUX | UX401 | | | | | | | |

Option PODs

proOption Pod module is used to either to add to an amGardpro unit, or use as a standalone product. It may be used to include the use of pushbuttons, selector switches, lamps, E-Stops, and/or Magnetic/RFID sensors within one enclosure. Alternatively, it can be used to house a keyswitch, controlled using a standard Fortress lock and key arrangement.

| <p>B0 Stand alone POD</p> <p>B1 POD to proStop body</p> <p>B2 POD to proLok body</p> <p>L0 POD to proLok+ body</p> <p>B.....C Coded magnet - Left</p> <p>B.....D Coded magnet - Right</p> <p>B.....S RFID - Left</p> <p>B.....T RFID - Right</p>    | <p>Explosion Protected Safety Switch Body</p> <p>Lamp Option pod is an ideal complimentary module where multiple interlocks are used to enhance identification of status. Pushbutton Option pod is ideal for use as an emergency stop or request to start/stop.</p> <p>Lamps</p> <ul style="list-style-type: none"> Easy, clear identification of machine status. Can be configured up to three lamps. <p>Pushbuttons</p> <ul style="list-style-type: none"> Request start/stop at the gate. Can be configured up to three pushbuttons. Illuminated pushbuttons. 2 position selector switch. E Stop. <ul style="list-style-type: none"> 2 NC safety contacts. Twist or pull. Illuminated option for twist. | <p>Product Types</p> <table border="1"> <thead> <tr> <th>Lamps/Pushbuttons Option Pod</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>Stand alone pod</td> <td>B0.....</td> </tr> <tr> <td>Fit to proStop body</td> <td>B1.....</td> </tr> <tr> <td>Fit to proLok body</td> <td>B2.....</td> </tr> <tr> <td>Fit to proLok+ body</td> <td>L0.....</td> </tr> </tbody> </table> <p>proOption POD - ASI</p> <p>If you require e-stops, push buttons, coded magnet switch or key switch options pods to be ASI enabled you must select one of the options below.</p> <table border="1"> <thead> <tr> <th>Asi</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>Asi option pod with control only</td> <td>BA1</td> </tr> <tr> <td>Asi option pod with safety only</td> <td>BA2</td> </tr> <tr> <td>Asi option pod with 1 safety 1 control</td> <td>BA3</td> </tr> <tr> <td>Asi option pod with 2 safety only</td> <td>BA4</td> </tr> <tr> <td>Asi option pod with 2 safety 1 control</td> <td>BA5</td> </tr> <tr> <td>Asi option pod with 3 safety only</td> <td>BA6</td> </tr> <tr> <td>Asi option pod with 3 safety 1 control</td> <td>BA7</td> </tr> </tbody> </table> <p>proOption POD - Sensors</p> <p>To provide a contactless means of verifying the door open/closed position. This may be used as the primary door sensor when a stand alone option pod is used, or as means of adding a secondary (coded) door sensor to a full door interlock product.</p> <table border="1"> <thead> <tr> <th>Sensors</th> <th>Ref No</th> </tr> </thead> <tbody> <tr> <td>Coded magnet - Left hand</td> <td>B.....C</td> </tr> <tr> <td>Coded magnet - Right hand</td> <td>B.....D</td> </tr> <tr> <td>RFID - Left hand</td> <td>B.....S</td> </tr> <tr> <td>RFID - Right hand</td> <td>B.....T</td> </tr> </tbody> </table> | Lamps/Pushbuttons Option Pod | Ref No | Stand alone pod | B0..... | Fit to proStop body | B1..... | Fit to proLok body | B2..... | Fit to proLok+ body | L0..... | Asi | Ref No | Asi option pod with control only | BA1 | Asi option pod with safety only | BA2 | Asi option pod with 1 safety 1 control | BA3 | Asi option pod with 2 safety only | BA4 | Asi option pod with 2 safety 1 control | BA5 | Asi option pod with 3 safety only | BA6 | Asi option pod with 3 safety 1 control | BA7 | Sensors | Ref No | Coded magnet - Left hand | B.....C | Coded magnet - Right hand | B.....D | RFID - Left hand | B.....S | RFID - Right hand | B.....T |
|--|---|--|------------------------------|--------|-----------------|---------|---------------------|---------|--------------------|---------|---------------------|---------|-----|--------|----------------------------------|-----|---------------------------------|-----|--|-----|-----------------------------------|-----|--|-----|-----------------------------------|-----|--|-----|---------|--------|--------------------------|---------|---------------------------|---------|------------------|---------|-------------------|---------|
| Lamps/Pushbuttons Option Pod | Ref No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stand alone pod | B0..... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fit to proStop body | B1..... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fit to proLok body | B2..... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fit to proLok+ body | L0..... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asi | Ref No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asi option pod with control only | BA1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asi option pod with safety only | BA2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asi option pod with 1 safety 1 control | BA3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asi option pod with 2 safety only | BA4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asi option pod with 2 safety 1 control | BA5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asi option pod with 3 safety only | BA6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Asi option pod with 3 safety 1 control | BA7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sensors | Ref No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Coded magnet - Left hand | B.....C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Coded magnet - Right hand | B.....D | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RFID - Left hand | B.....S | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RFID - Right hand | B.....T | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

AMGARD MODULAR COMPONENTS

Electrical Switching / Locking

- BK0.** Stand alone POD
- BK1.** Fit to proStop body
- BK2.** Fit to proLok body



proOption POD - Key Switch

The removal of the key operates a set of switches. These can be used for a variety of functions.

- Requesting machine stop at the end of a run-down cycle.
- Enabling teach mode activation.
- Preventing inadvertant re-start.
- Contains 2NC/2NO contact arrangement.
- Switch rating 3A.
- Can be used as a 'stand alone' key switch.

Product Types

proOption POD

| Key switch option pod | Ref No |
|-----------------------|--------|
| Stand alone pod | BK0. |
| Fit to proStop body | BK1. |
| Fit to proLok body | BK2. |

proOption POD - ASi



If you require e-stops, push buttons, coded magnet switch or key switch options pods to be ASi enabled you must select one of the options below.











| Asi | Ref No |
|--|--------|
| Asi option pod with control only | BA1 |
| Asi option pod with safety only | BA2 |
| Asi option pod with 1 safety 1 control | BA3 |
| Asi option pod with 2 safety only | BA4 |
| Asi option pod with 2 safety 1 control | BA5 |
| Asi option pod with 3 safety only | BA6 |
| Asi option pod with 3 safety 1 control | BA7 |
| Asi option pod with 2 safety 2 control | BA8 |

Lock and Key Specifications

Fortress locks have over 200,000 different lock combinations. Besides the standard basic (CL) it is also possible to have a master series (ML) lock. The ML lock which can be operated by a special cut master key (MLK-SUGS) that fits any mastered lock in a specific mastered lock series. For ease of use all Fortress locks provide key insertion in two orientations.

Lock and key engravings

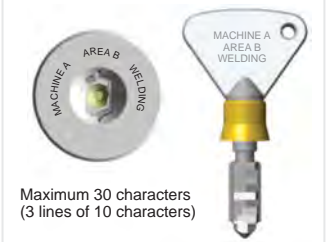
Each different key combination is allocated with an engraved code onto the lock and key, of up to maximum 30 characters (3 lines of 10 characters). This engraving code is used to identify locks and keys and is recorded in a database for continuous cross reference. Required engraving details are therefore to be provided with each order.

| | | | | | | |
|----------|---|---|---|---|--|--|
| Standard |  CLIN lock Standard CL lock no dustcover |  CLIS lock Standard CL lock with stainless steel dustcover |  CLSS lock Full stainless steel CL lock with stainless steel dustcover |  CLK-SUS Standard key for use on all CL lock types  CLK-LP Standard low profile key for use on all CL lock types | | |
| | Master |  MLIN lock Masterable ML lock no dustcover |  MLIS lock Masterable ML lock with stainless steel dustcover | |  MLSS lock Full stainless steel masterable ML lock with stainless steel dustcover |  MLK-SUGS Standard key for use on all ML lock types  MLK-SUCM Master cut key for use on all ML lock types |

As an option Fortress locks can also be supplied with Padlockable dustcovers, that incorporates two padlock holes which can be fitted with lockout hasps and scissor hasps between 3mm and 8mm in diameter as shown below.

| | | | |
|-------------------|---|---|---|
| Dustcover Options |  CLDC Stainless Steel Dustcover |  PLDC Stainless Steel Padlockable Dustcover |  LOS3 Lock-Out Scissor Hasp |
| | | |  LOS3C Lock-Out Scissor Hasp c/w Cable |

Key and lock engravings

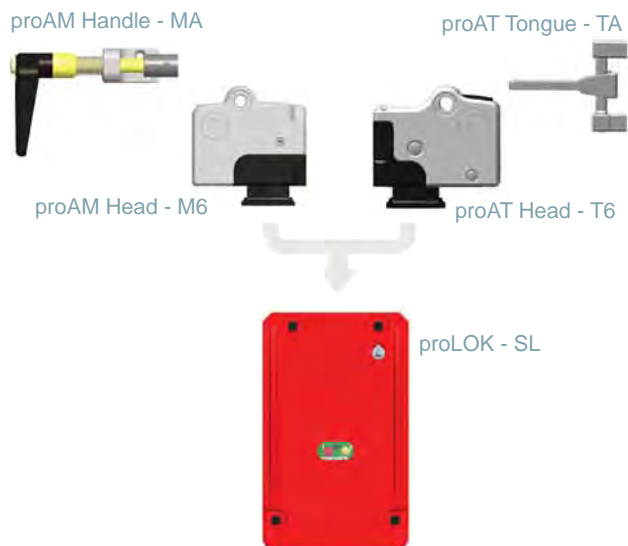


Maximum 30 characters
(3 lines of 10 characters)

AMGARD TECHNICAL SPECIFICATIONS

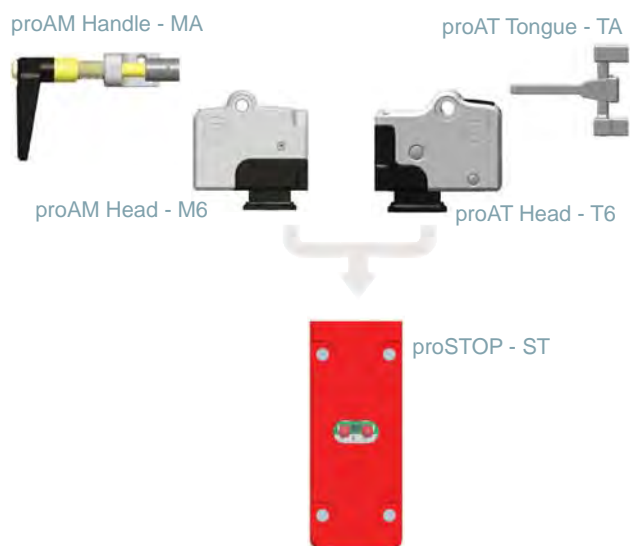
MAM6SL401 & TAT6SL401

The solenoid controlled safety switch body (proLOK) can be equipped with two different head types, creating door/hatch lock configurations that restrict access to the safeguarded area until it is safe to enter.



MAM6ST401 & TAT6ST401

The safety switch body (proSTOP) can be equipped with two different head types. These configurations select machine stop and detect the position of doors/hatches that gives access to the safeguarded area or machine.



amGardpro Technical Specification

| | |
|-----------------------------|---|
| Housing Materials | Zinc Alloy to BSEN12844 |
| Paint Finishes | Glass powder coat on passivated base material |
| Ingress Protection | IP67 |
| Mechanical Life | >1 000 000 Switching Cycles |
| Performance Level - proStop | PLe |
| Performance Level - proLok | PLe (depending on application) |
| B10d - proStop | 5 000 000 |
| Ambient Temperature | -5°C to +40°C |
| Switches Conformance | DIN VDE 0060 Part 206 & IEC 947-5-1 |
| Maximum Frequency of Ops | 7 200 per hour |
| Connector Type - proStop | Spring Activated Vibration Proof Block |
| Connector Type - proLok | M12 Male |

amGardpro Technical Specification

| | |
|------------------------------|---|
| Switching Principal | Positive Break (safety circuits) |
| Switch Circuit Current | 3A |
| Minimum Switch Current | 1mA at 5V DC |
| Maximum Switching Voltage | 230V AC Max |
| Utilisation Category | AC 15 or DC 13 |
| Switching Contact Element | 4NC/2NO (proLOK), 2NC/1NO (proSTOP) |
| Control Voltage | 24V AC/DC, 110V AC or 230V AC |
| Insulating Resistance | 20M Ohm |
| Insulating Voltage | 2500V AC |
| Solenoid Power Rating | 12W (current at nominal 24V DC = 500mA. Quasi-steady current = 350mA) |
| Solenoid Rating (Duty Cycle) | 100% |
| Solenoid Voltage | 24V AC/DC, 110V AC and 230V AC |
| Solenoid Voltage Tolerance | 90% to 110% of nominal |
| Cable Size | 26 - 14 AWG |

AMGARD TECHNICAL SPECIFICATIONS

Quick Disconnect Connector Options

| Option | Front View | Pinout Diagram | No. Pins | Max Voltage | Connector | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 | Pin 10 | Pin 11 | Pin 12 | Pin 13 | Pin 14 | Pin 15 | Pin 16 | Pin 17 | Pin 18 | Pin 19 | |
|--------|------------|----------------|----------|-------------|-----------|--------|-------------|-------------|-----------|-------------|--------------|------------|--------------|--------------|------------|---------|--------------|--------------|-------------|--------|--------|--------|------------|-----------|--|
| D1 | | | 5 | 300v | M12 | Brown | White | Blue | Black | Grey | | | | | | | | | | | | | | | |
| D2 | | | 12 | 300v | UN2 | Orange | Blue | White/Black | Red/Black | Green/Black | Orange/Black | Blue/Black | Black/White | Green/Yellow | Red | White | Black | | | | | | | | |
| D3 | | | 8 | 60v | M12 | White | Brown | Green | Yellow | Grey | Pink | Blue | Red | | | | | | | | | | | | |
| D6 | | | 14 | 30v | M16 | Brown | Red/Blue | Black | Pink | Green | Blue | Orange | Grey/Brown | O Violet | P Red | R White | S Grey | T Yellow | U Tan | | | | | | |
| D7 | | | 10 | 60v | M12 | White | Brown | Green | Yellow | Grey | Pink | Blue | Red | Orange | Tan | | | | | | | | | | |
| D8 | | | 12 | 60v | M12 | White | Brown | Green | Yellow | Grey | Pink | Blue | Red | Orange | Tan | Black | Violet | | | | | | | | |
| D9 | | | 12 | 300v | M23 | Brown | Brown/White | Blue | White | Green | Yellow | Grey | Pink | Red | Black | Violet | Green/Yellow | | | | | | | | |
| E3 | | | 10 | 300v | UN2 | Orange | Blue | White/Black | Red/Black | Green/Black | Orange/Black | Red | Green/Yellow | Black | White | | | | | | | | | | |
| E4 | | | 19 | 300v | UN2 | Violet | Red | Grey | Red/Blue | Blue | Green | Brown | White/Green | White/Yellow | White/Grey | Black | Green/Yellow | Yellow/Brown | Brown/Green | White | Yellow | Pink | Grey/Brown | Grey/Pink | |
| F2 | | | 19 | 300v | M23 | Violet | Red | Grey | Red/Blue | Green | Blue | Grey/Pink | White/Green | White/Yellow | White/Grey | Black | Green/Yellow | Yellow/Brown | Brown/Green | White | Yellow | Pink | Grey/Brown | Brown | |